ADCCS
Air Defense Command and Control System

TSG's air situation awareness capabilities brings innovation and collaboration like never before

ADCCS is an advanced air defense Command & Control system that designed to meet our customers' future combat air challenges. ADCCS provides a unified air situation picture and comprehensive operational management for air forces as well as for civilian air traffic control. The system is operational in various air forces globally and enable air commanders and controllers effectively perform their tasks.

Main Capabilities

- Generation of a high quality Air Situation Picture (ASP)
- Overall optimization of system resources (controllers, sensors, etc.)
- Effective Human-Machine Interface
- High system survivability and availability
- Decision Support tools for commanders and controllers
- Full operational monitoring of system behavior and means to overcome problems in real time

The need for high quality ASP stems from the fact that the ASP serves as the main source of information for the decision making within all echelons of Air Force Command. The quality of these decisions, in area of threat evaluation, planning and battle management, depends directly upon the quality of the Air Situation Picture.
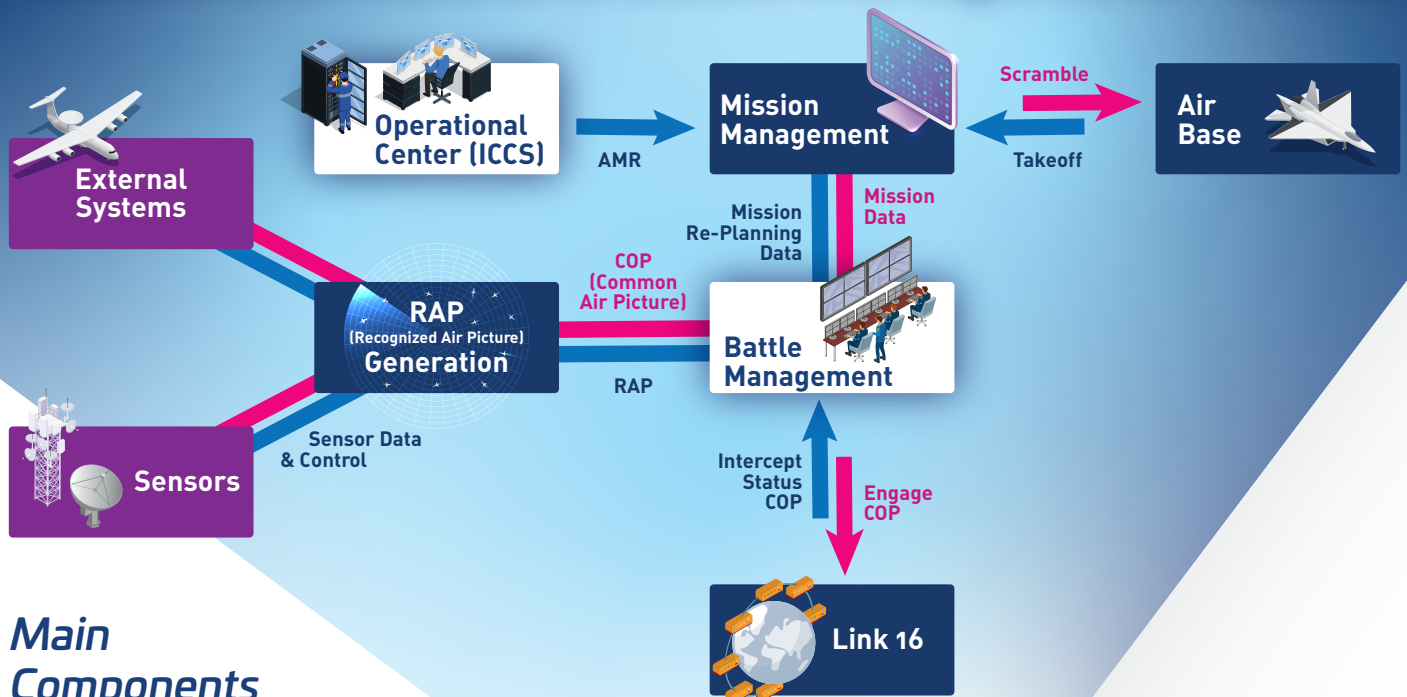
System Architecture

A typical ADCCS consists of:

- Central Air Defense Command Centers (CADCC)
- Air Defense Command Centers (ADCC)
- Remote Users (ASDS)

After being generated in the CADCC the ASP is distributed to all the other sites, filtered according to their specific privileges and regardless of actual geographical locations.

ADCCS Overview and Battle Management Process

External Systems

Operational Center (ICCS)

AMR

Mission Management

Scramble

Takeoff

Air Base

Mission Re-Planning Data

COP (Common Air Picture)

RAP (Recognized Air Picture) Generation

Mission Data

Battle Management

RAP

Sensor Data & Control

Sensors

Intercept Status COP

Engage COP

Link 16

Main Components

Air Situation Picture Generator

ASPG component provides a comprehensive solution to the Multi-Radar/ Multi-Target Tracking problem within the military environment. It consists of the following:

- Advanced ASP Generation Mechanism, based on state-of-the-art developments in the area of multihypothesis ambiguity resolution and hybrid multi-model/variable state dimension update techniques, with a finite memory tracking filter
- Clutter Rectification
- Radar Bias Compensation (Registration)
- Tracking On Line Analyzer (TOLA), providing monitoring of sensors
- Radar Management Package

The Battle Management

BM component, provides the required information and support facilities to the commanders and controllers. Some of the typical packages are:

- Flight Plans generation and Maintenance
- Identification
- Threat Assessment and Weapon Allocation
- Intercept support
- Flight Safety Support
- Recording and Replay
- Generation of early warning alerts

The Operator WorkStation

The OWS is customized to support the operational requirements of each specific user. The OWS's are usually grouped into: Operational Complex, Technical Complex and Simulation & Training Complex

System Management & Control

This component assures high operational availability by providing monitoring and control of system resources & parameters, and a quick recovery from failures that is transparent to operators and avoiding loss of operational information. Through the Supervisor Station, the operator has the ability to define, monitor and re-configure the various system components and resources.

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